R. S. TROTT.

ROTARY VALVE FOR EXPLOSIVE ENGINES.

APPLICATION FILED JULY 19, 1909.

1,067,286.

Patented July 15, 1913

2 SHEETS—SHEET 1.

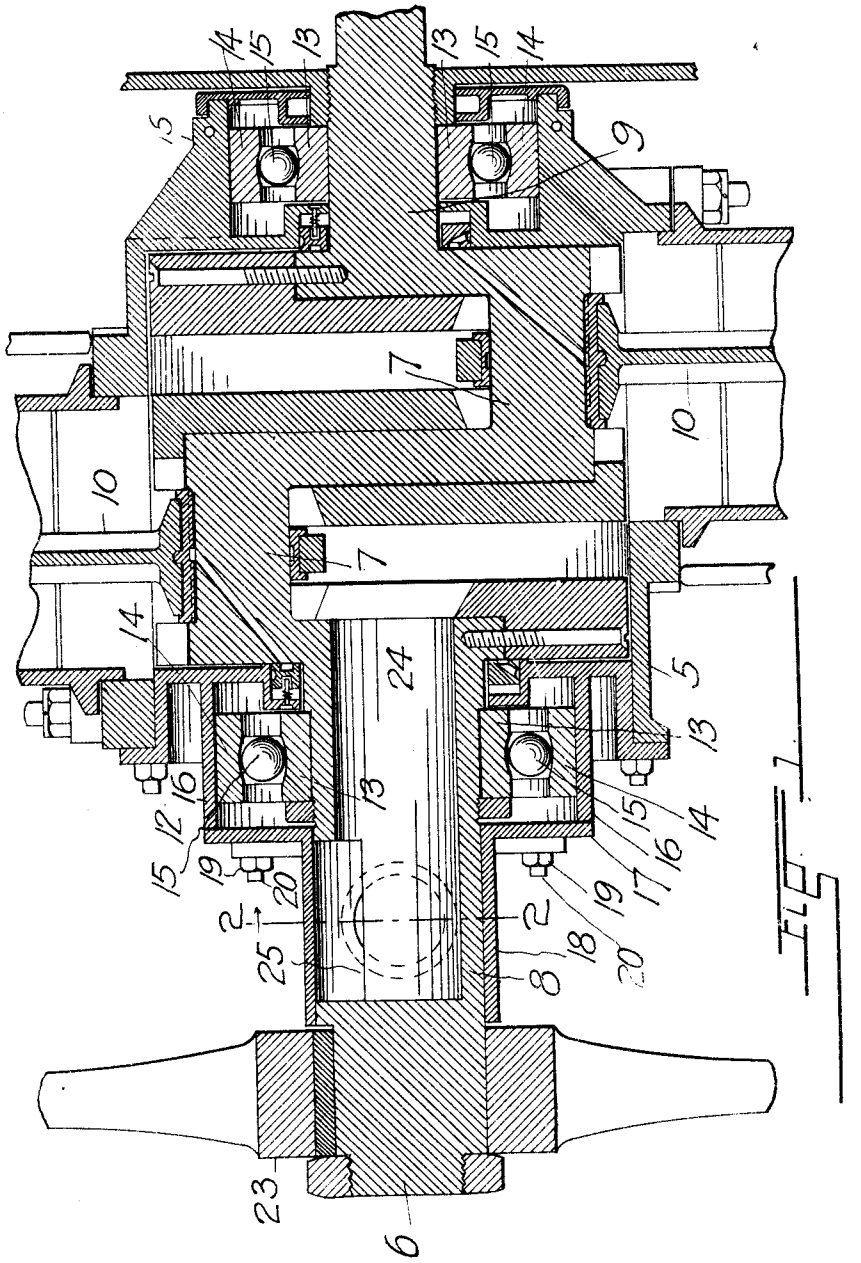


FIG. 1.

WITNESSES:

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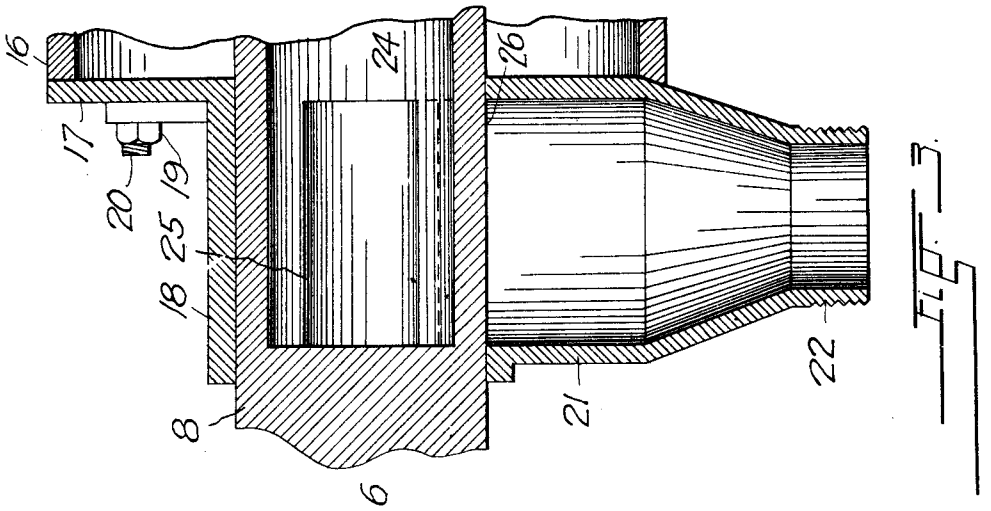


Fig. 3.

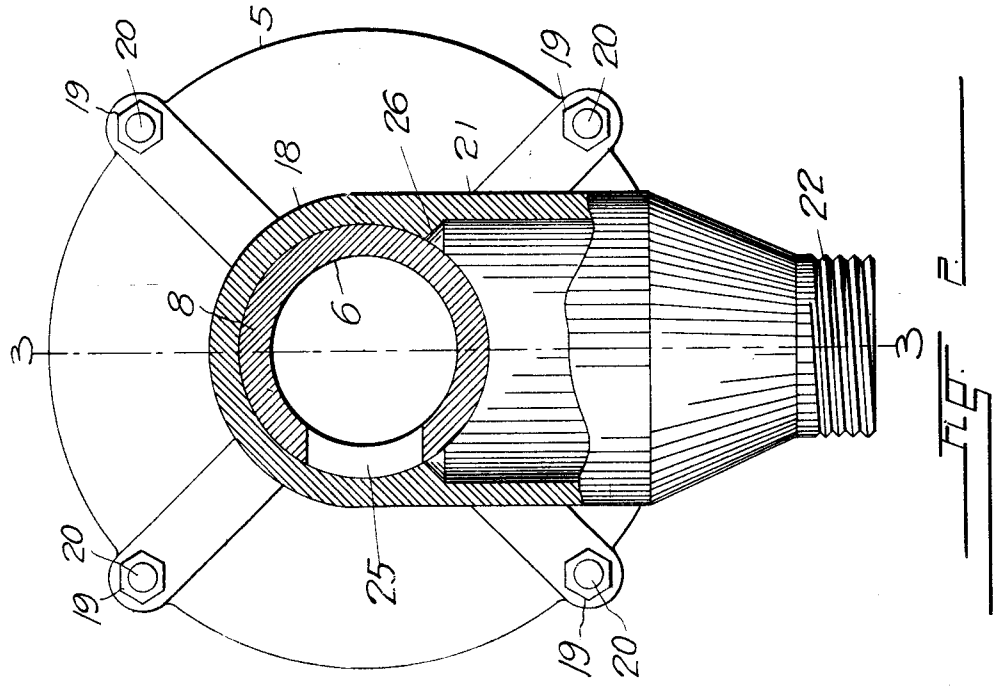


Fig. 2.

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UNITED STATES PATENT OFFICE.

ROLLAND S. TROTT, OF DENVER, COLORADO.

ROTARY VALVE FOR EXPLOSIVE-ENGINES.

1,067,286. Specification of Letters Patent. Patented July 15, 1913.

Application filed July 19, 1909. Serial No. 508,414.

To all whom it may concern:

Be it known that I, ROLLAND S. TROTT, citizen of the United States of America, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Rotary Valves for Explosive-Engines, of which the following is a specification.

My invention relates to an improved rotary valve for explosive engines and has for its object the provision of a crank-shaft of novel construction which, in connection with a supplementary part attached to the crank case, constitutes an intake-valve for the explosive mixture, which in addition to the simplicity of its construction, has the advantage of positive action in perfect agreement with the movements of the crank and the therewith connected piston. I attain this object by the mechanism shown in the accompanying drawings in the views of which corresponding parts are similarly designated and in which—

Figure 1, represents a horizontal, central, longitudinal section through the crank case of an explosive engine and the therewith connected parts; Fig. 2, a cross-section along the line 2—2 Fig. 1, drawn to an enlarged scale, and Fig. 3, a section taken along the line 3—3 Fig. 2.

Referring to the drawings by numerals, let 5 denote the crank case in which a crank shaft 6 composed of wrist-members 7 and shaft members 8 and 9, is revolubly mounted. The wrists of the crank shaft connect, as usual, with connecting rods 10, the opposite ends of which engage the reciprocating pistons of the engine. The crank case 5 is provided with cylindrical extensions 16 for the reception of ball-bearings 15, the runways 13 and 14 of which are respectively mounted within said extensions and secured upon the axially alined shaft-members 8 and 9 extending therethrough. The open end of the extension 16 through which the member 8 projects, is closed by the correspondingly shaped flange 17 of a sleeve 18 which is rigidly secured to said extension by means of nuts 19 screwed upon stud-bolts 20, or analogous fastening means.

The sleeve 18 which in conjunction with the therein fitted outer portion of the shaft-member 8, constitutes the intake-valve of the engine, has a laterally projecting branch 21, the outer contracted extremity of which is threaded to connect with a carbureter or other source of motive fluid, and the member 8 has a peripheral port 25 which, by means of an axial bore 24 in said member, communicates with the interior of the crank-case and which is disposed to register with the opening 26 made by the branch 21 in the interior of the sleeve 18, during a part of each revolution. The extremity of the shaft-member 8, protruding beyond the end of the sleeve 18, carries a fly-wheel 23 for the usual purpose.

The length of the port 25 corresponds with that of the opening 26, while its width is determined by an arc which is approximately the supplement of that between the sides of said opening with the result that during each revolution of the shaft, the valve will be alternately opened and closed for approximately equal periods and the explosive mixture admitted to the crank case 2 and the therewith communicating cylinder during the outward stroke of the piston.

It will be observed that by reason of the contiguity of the ball bearing 15 to the valve portion of the shaft, friction between the latter and the surrounding sleeve is reduced to a minimum while the fixed relation of the valve to the piston and the absence of separate parts, renders the action of the engine positive and reliable.

While I have shown and described my improved valve in the best form now known to me, I wish it understood that changes in the proportions and minor details of construction may be resorted to within the spirit of the invention.

What I claim and desire to secure by Letters Patent is:—

1. In an explosion engine, a crank-case, a hollow crank shaft having in its circumferential surface, a port communicating with its interior, a bearing on said casing for supporting said shaft at a non-ported portion thereof, and a non-bearing sleeve surrounding the ported portion of the shaft and having an opening adapted to register with the said port during a part of each revolution of the shaft, said sleeve being detachably secured to said casing.

2. In an explosion engine, a crank casing, a hollow shaft having in its circumferential surface a port communicating with its inte-

rior, an extension formed on said casing, a roller bearing mounted on said extension for supporting said shaft at a non-ported portion thereof, and a non-bearing sleeve surrounding the ported portion of the shaft and having an opening adapted to register with the said port during a part of each revolution of the shaft, said sleeve being detachably secured to said casing extension, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

ROLLAND S. TROTT.

Witnesses:
G. J. ROLLANDET,
M. L. GEARY.